OBSTRUCTIVE SLEEP APNEA SYNDROME: RELATIONSHIPS BETWEEN SEVERITY AND SEX

SINDROME DELLE APNEE OSTRUTTIVE DEL SONNO: RAPPORTI TRA GRAVITÀ E SESSO

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Parole chiave: sindrome delle apnee ostruttive nel sonno, polisonnografia, AHI

Abstract

Background: Obstructive sleep apnea syndrome (OSAS) is a pathological condition characterized by frequent episodes of collapse of the structures of the upper airways with interruption of airflow and reduction of oxygen saturation in arterial blood. Its incidence is equal to about 4% in men and 2% in females in the population up to 65 years of age. The severity of OSAS is determined by an index that relates the number of apneic events per hour of sleep “apnea-hypopnea index” (in English AHI: apnea-hypopnea index). As the muscle tone of the body ordinarily relaxes during sleep, and the airway at the throat is composed of walls of soft tissue, which can collapse, it is not surprising that breathing can be obstructed during sleep. Common signs of OSA are unexplained daytime sleepiness, restless sleep, and loud snoring (with periods of silence followed by gasps). Less common symptoms are morning headaches, insomnia, trouble concentrating, mood changes such as irritability, anxiety and depression, forgetfulness, increased heart rate and/or blood pressure, decreased sex...
drive, unexplained weight gain, increased urination and/or nocturia, frequent heartburn or gastroesophageal reflux disease, and heavy night sweats.

The gold standard for the diagnosis of OSAS is considered the polysomnography.

**Objectives:** The aim of our study is to evaluate the influence of sex in the presentation of the disease.

**Methods:** The sample was undergone to a visit for the evaluation of any anatomical abnormalities of the first airways, which can cause or aggravate the disease.

Patients was subjected to a questionnaire for the evaluation of disorders which achieve to disease with the compilation of the Epworth evaluation scale, which measure the frequency with which the patient tends to fall asleep during the daily activities.

We utilized also the polysomnography for the diagnosis and staging of the disease.

**Results:** The analysis of the results obtained allows us to observe that the ratio between the apnea/Hypopnea number for hour and sex is not statistically significant (p>0,05), despite the prevalence of OSAS is greater in males than in females, with a ratio of 3:1.

**Discussion and Conclusions:** Our study has allowed us to observe that the frequency of submission of OSAS is greater in male than female with a ratio of 3:1, while the severity of the disease does not appear related to sex.

Thus, our study confirms the existing data in the literature showing a ratio of 5:1 in the presentation of the disease in males than in females.

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**Abstract**

**Introduzione:** La sindrome delle apnee ostruttive del sonno (OSAS) è una condizione patologica caratterizzata da frequenti brevi episodi di collasso delle strutture delle vie aeree superiori durante il sonno, con conseguente interruzione del flusso aereo che comporta la riduzione della saturazione di ossigeno nel sangue arterioso.

La severità dell’ OSAS è determinata da un indice che mette in relazione il numero di eventi di apnea per ora di sonno "apnea-ipopnea" (in inglese AHI: apnea-ipopnea).

Dal momento che la muscolatura del corpo si rilassa normalmente durante il sonno, le prime vie aeree, composte da pareti di tessuto molle che può collassare, non è sorprendente che la respirazione possa essere ostruita durante il sonno.


Il gold standard per la diagnosi di OSAS è considerata la polisonnografia.

**Obiettivi:** Lo scopo del nostro studio è la valutazione della prevalenza di uno dei due sessi nello sviluppo e nella gravità di presentazione della patologia.

**Metodi:** Abbiamo sottoposto il campione ad esame obiettivo per evidenziare la presenza di eventuali anomalie anatomiche che potessero causare o aggravare la patologia.

Infine, è stata utilizzata la polisonnografia per la diagnosi e stadiazione della patologia.
**Risultati:** L’analisi dei risultati ottenuti ha permesso di osservare che il rapporto tra numero di apnee/ipopnee per ora di sonno ed il sesso non è statisticamente significativo (p>0,05), nonostante la prevalenza dell’OSAS nel sesso maschile sia maggiore che nel sesso femminile, con un rapporto di 3:1.

**Discussione e ConCLUSIONI:** Il nostro studio ha permesso di osservare che la frequenza di presentazione dell’OSAS è maggiore nel sesso maschile rispetto a quello femminile con un rapporto di 3:1, mentre la gravità della patologia non appare correlata al sesso.

Quindi, la nostra ricerca conferma i dati già presenti in letteratura che mostrano un rapporto di 5:1 nella presentazione della patologia nei maschi rispetto alle femmine.

**Background**

The obstructive sleep apnea syndrome (OSAS) is characterized by episodes of partial obstruction (hypopnea) or complete (apnea) of the upper airway. Its incidence is equal to about 4% in men and 2% in females in the population up to 65 years of age (1, 2). The severity of OSA is determined by an index that relates the number of apneic events per hour of sleep “apnea-hypopnea index” (in English AHI: apnea-hypopnea index). A value of AHI of less than 5 is considered normal. A value between 5 and 15 classifies the OSAS in a mild form, a value between 15-30 defines the moderate and a value greater than 30 characterizes the severe sleep apnea (3, 4). The gold standard for the diagnosis of OSAS is considered the polysomnography (5, 6).

**Objectives**

The aim of our study was to evaluate the prevalence of one of the two sexes in the development and severity of presentation of Obstructive Sleep Apnea Syndrome.

**Methods**

The study has been developed at the Complex Operative Unit of Phoniatrics of the Policlinico Umberto I in Roma. We enrolled 193 patient, 57 female and 136 male, aged between 21 and 77 years from September 2010 to July 2011. It was carried out a careful history that concern accessories disorders associated to OSAS. Sample was undergone to a visit for the evaluation of any anatomical abnormalities of the first airways, which can cause or aggravate the disease. Patients was subjected to a questionnaire for the evaluation of disorders which achieve to disease with the compilation of the Epworth evaluation scale, which measure the frequency with which the patient tends to fall asleep during the daily activities. Sample was divided into two groups according to sex. Each group, then, was further divided into four groups according to age. All patients were submitted to nocturnal polysomnographic home examination by Embletta ® X100 for the identification and quantification of episodes of apnea/Hypopnea during sleep and elaboration of the AHI (Apnea/Hypopnea Index). In male patients, the mean AHI was 31.8 (range 18.2 to 45.5), while in females is 30.05 (range 14.3 to 41.8).

**Statistical Analysis**

To evaluate the correlation between AHI, sex and age was conducted a $\chi^2$ analysis.

**Results**

Statistical analysis of data of the ratio between AHI, age and sex is not statistically significant (p>0,05). The average AHI estimated for age group does not differ significantly from average AHI estimated for sex. OSAS is present in male of all ages with a peak of more frequent between 40 and 70 years; in females is present only after 40 years, with a peak between 55 and 70 years (Graphic 1, 2).
Graphic 1 - OSAS frequency in males divided into age groups

Furthermore, it is evident that the OSAS is most frequent in the males than females with a ratio of 3:1 (Graphic 3).
Discussion and Conclusions

Our study confirms the existing data in the literature that OSAS is more common in males than females with a ratio of 3:1 (7, 8).

The age range of the disease is higher in males than in females. Also there is no a significant correlation between the severity of OSAS, sex and age.

This is a preliminary study that requires an extension of the sample to confirm the data obtained.
References


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